

## **EXHIBIT 4**

**SYNKLOUD TECHNOLOGIES, LLC'S INFRINGEMENT ANALYSIS**

**Infringement Analysis of U.S. Patent No. 9,775,774 by SHEnB Co. Ltd. and/or Cartessa Aesthetics, LLC**

**(Based on Public Information Only)**

SynKloud Technologies, LLC (“SynKloud”) provides this preliminary and exemplary infringement analysis with respect to infringement of U.S. Patent No. 9,775,774, entitled “Method, System, and Apparatus for Dermatological Treatment” (hereinafter “the ’774 patent”) by SHEnB Co. Ltd. (“SHEnB”) and/or Cartessa Aesthetics, LLC (“Cartessa”). The following chart illustrates an exemplary analysis regarding infringement by Cartessa’s radio frequency microneedling products, including, but not limited to VirtueRF (the “Accused Instrumentalities”).

The analysis set forth below is based only upon information from publicly available resources regarding the Accused Instrumentalities, as neither SHEnB nor Cartessa have provided any non-public information.

Unless otherwise noted, SynKloud contends that SHEnB and/or Cartessa directly infringes the ’774 patent in violation of 35 U.S.C. § 271(a) by selling, offering to sell, making, using, and/or importing the Accused Instrumentalities. The following exemplary analysis demonstrates that infringement. Unless otherwise noted, SynKloud further contends that the evidence below supports a finding of indirect infringement under 35 U.S.C. §§ 271(b) and/or (c), in conjunction with other evidence of liability under one or more of those subsections.

Unless otherwise noted, SynKloud believes and contends that each element of each claim asserted herein is literally met through SHEnB and/or Cartessa’s provision of the Accused Instrumentalities. However, to the extent that SHEnB and/or Cartessa attempt to allege that any asserted claim element is not literally met, SynKloud believes and contends that such elements are met under the doctrine of equivalents. More specifically, in its investigation and analysis of the Accused Instrumentalities, SynKloud did not identify any substantial differences between the elements of the patent claims and the corresponding features of the Accused Instrumentalities, as set forth herein. In each instance, the identified feature of the Accused Instrumentalities performs at least substantially the same function in substantially the same way to achieve substantially the same result as the corresponding claim element.

To the extent the chart of an asserted claim relies on evidence about certain specifically-identified Accused Instrumentalities, SynKloud asserts that, on information and belief, any similarly-functioning instrumentalities also infringe the charted claims. SynKloud notes that the present claim chart and analysis are necessarily preliminary in that SynKloud has not obtained substantial discovery from SHEnB and/or Cartessa nor has SHEnB and/or Cartessa disclosed any detailed analysis for their non-infringement positions, if any. Further, SynKloud does not have the benefit of claim construction or expert discovery. SynKloud reserves the right to supplement and/or amend the positions taken in this preliminary and exemplary infringement analysis, including with respect to literal infringement and infringement under the doctrine of equivalents, if and when warranted by further information obtained by SynKloud, including but not limited to information adduced through information exchanges between the parties, fact discovery, claim construction, expert discovery, and/or further analysis.

Claim 11	Virtue RF
11. An apparatus for treating dermatological tissue, comprising:	<p>The VirtueRF device manufactured by SHEnB and sold by Cartessa comprises an apparatus for treating dermatological tissue.</p>  <p><a href="https://virtuerf.com/learn/">https://virtuerf.com/learn/</a> (accessed 10/14/2021)</p>

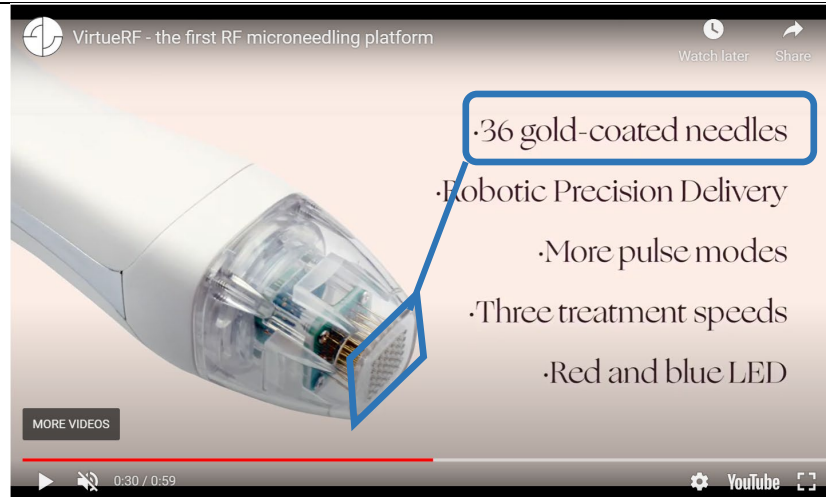
a device including a plurality of needles one of extending or extendable a desired distance from a surface, the desired distance selected to enable the plurality of needles to penetrate dermatological tissue; and

The VirtueRF device comprises a device including a plurality of needles one of extending or extendable a desired distance from a surface, the desired distance selected to enable the plurality of needles to penetrate dermatological tissue.

VirtueRF comprises a **device** including a plurality of **needles**.

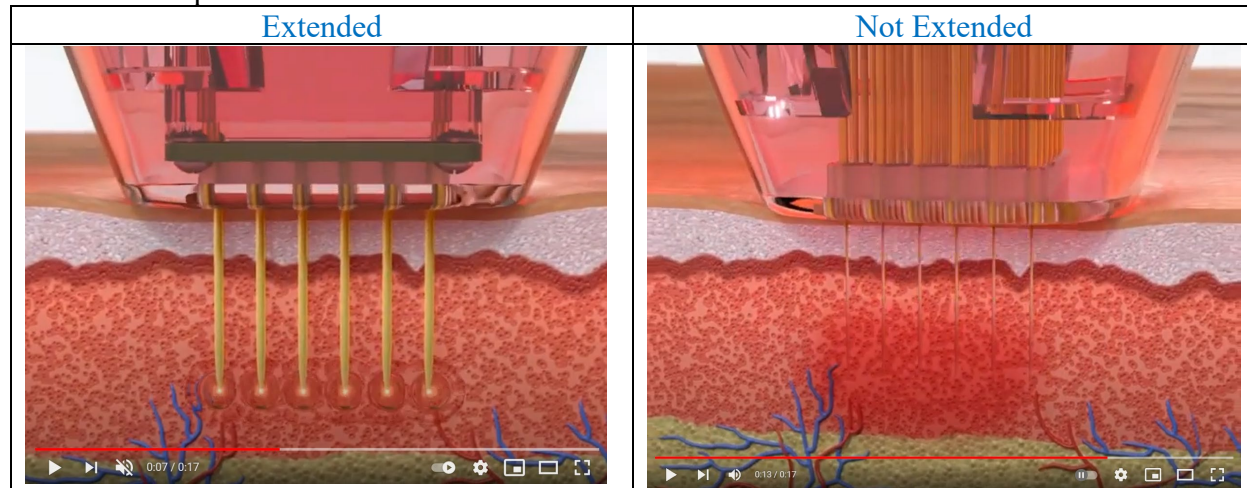


<https://www.cartessaesthetics.com/virtuerf> (accessed 10/14/2021)



<https://youtu.be/0bfEkkDn-JQ> at 0:30 (accessed 10/14/2021)

VirtueRF comprises needles extendable a desired distance from a surface.

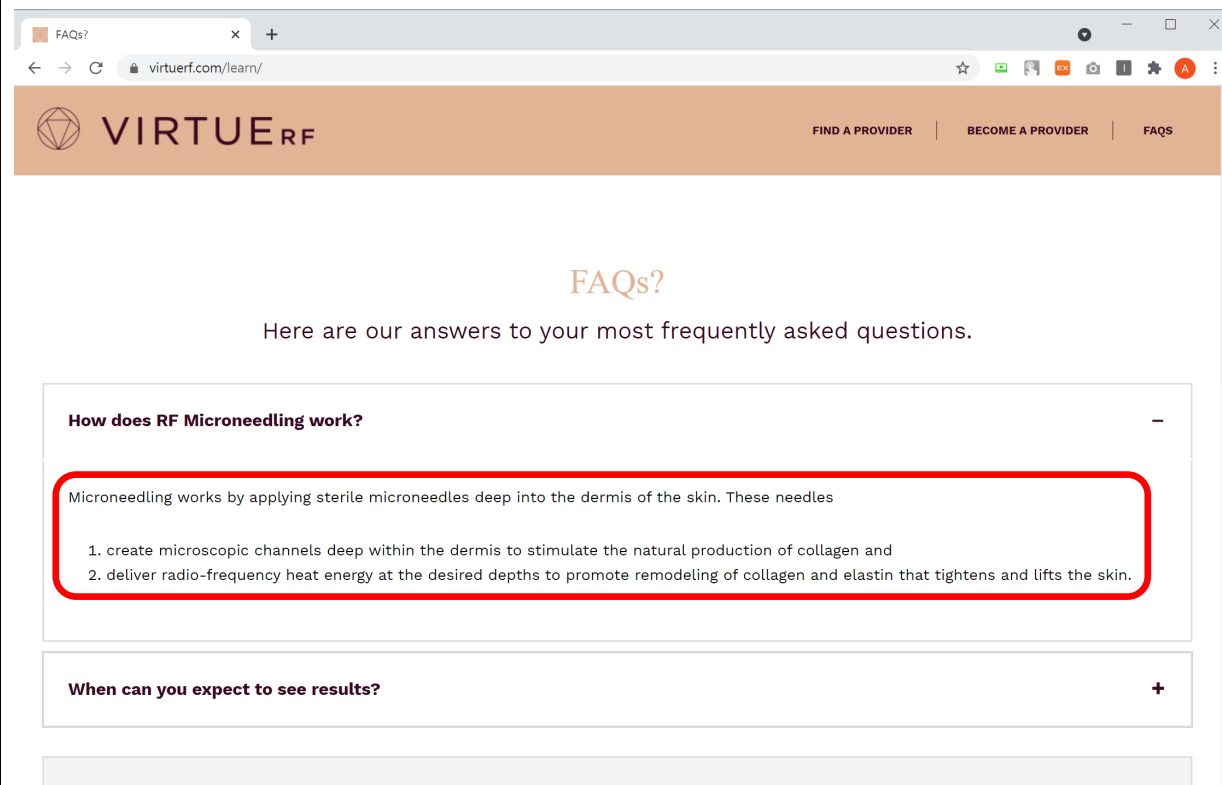


<https://youtu.be/IBBVfXkRn3M> at 0:07 and 0:13 (accessed 10/14/2021)



<https://youtu.be/m9x-Oh4fsds> at 0:19 (accessed 10/14/2021)

When extended, the needles penetrate dermatological tissue.



<https://virtuerf.com/learn/> (accessed 10/14/2021)

a signal generator electrically coupled to the plurality of extended needles to produce pulsed radio frequency signals across the plurality of needles to affect dermatological tissue near the plurality of needles.

VirtueRF comprises a signal generator electrically coupled to the plurality of extended needles to produce pulsed radio frequency signals across the plurality of needles to affect dermatological tissue near the plurality of needles.

VirtueRF comprises a **signal generator** electrically coupled to the **plurality of extended needles**.

## Main Body Description

- 1 LCD monitor
- 2 Emergency switch
- 3 LED indicator
- 4 Front Handle
- 5 Handpiece cradle
- 6 Castor
- 7 Handpiece Holder
- 8 Handpiece



<http://www.shenb.com/sub/product/product.asp?idx=655> (accessed 10/14/2021)





<http://www.shenb.com/sub/product/product.asp?idx=655> (accessed 10/14/2021)

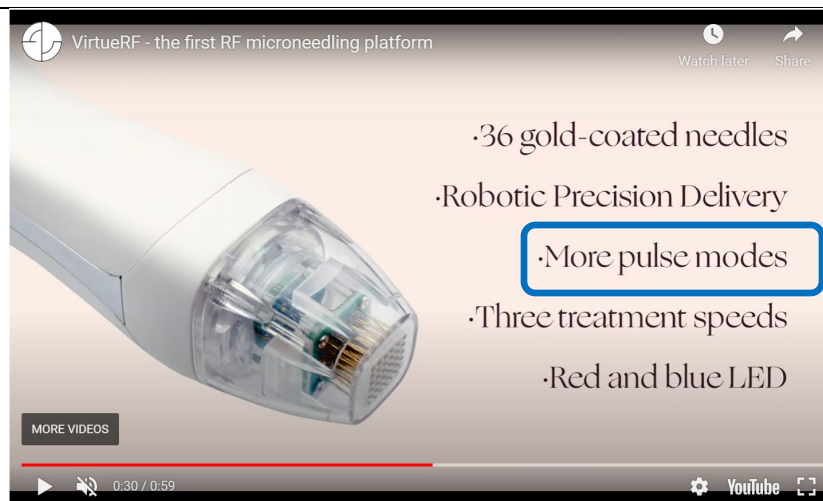
## Principle of Operation

This is a device can coagulate the surrounding tissue and transmitting RF micro current deep inside the tissue by using micro needles or single pin tips It consists of the main body and the Smart BipolarRF Handpiece, foot switch and power cord.

This product is a radio frequency output device of 1MHz, 2MHz that transmits radio frequency power to the human body by TIP connected to the connecting cable.

<http://www.shenb.com/sub/product/product.asp?idx=655>

VirtueRF comprises a signal generator that produces pulsed radio signals across the plurality of needles to affect dermatological tissue near the plurality of needles.



<https://youtu.be/0bfEkkDn-JQ> at 0:30 (accessed 10/14/2021)



<https://youtu.be/m9x-Oh4fsds> at 0:19 (accessed 10/14/2021)

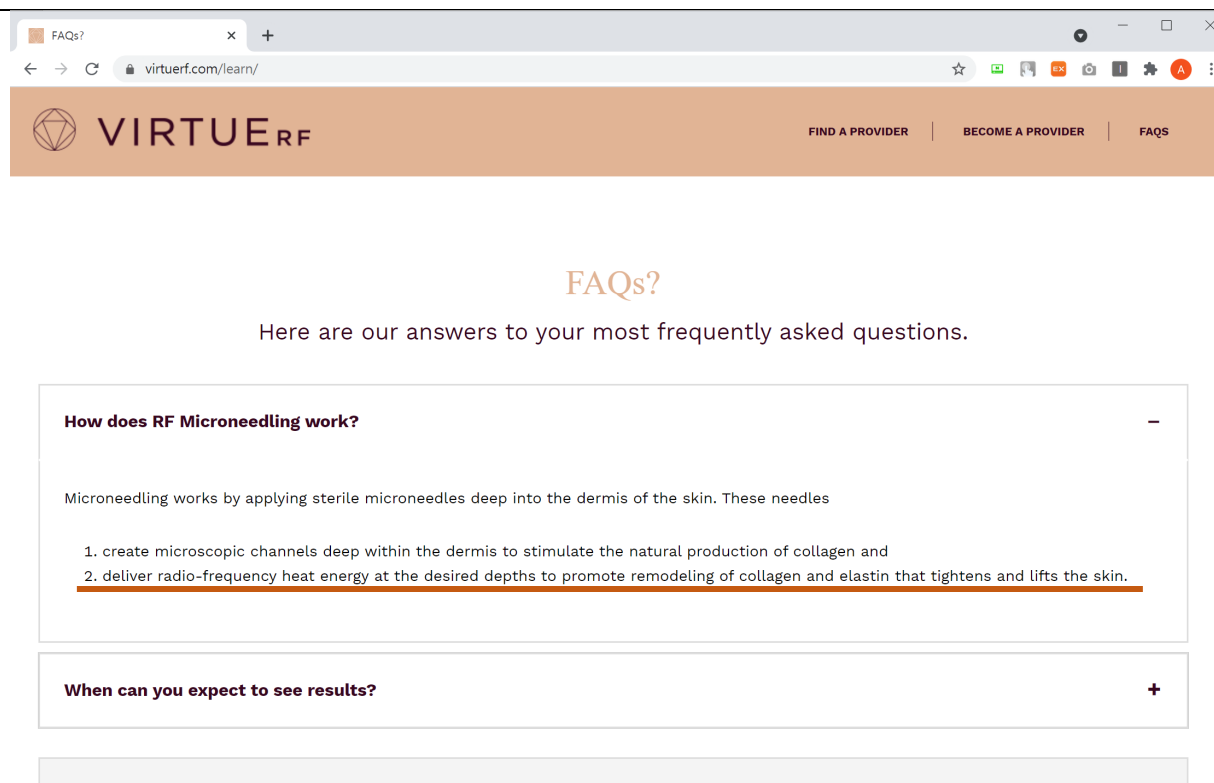
The pulsed radio signals affect the dermatological tissue near the plurality of needles.

## Principle of Operation

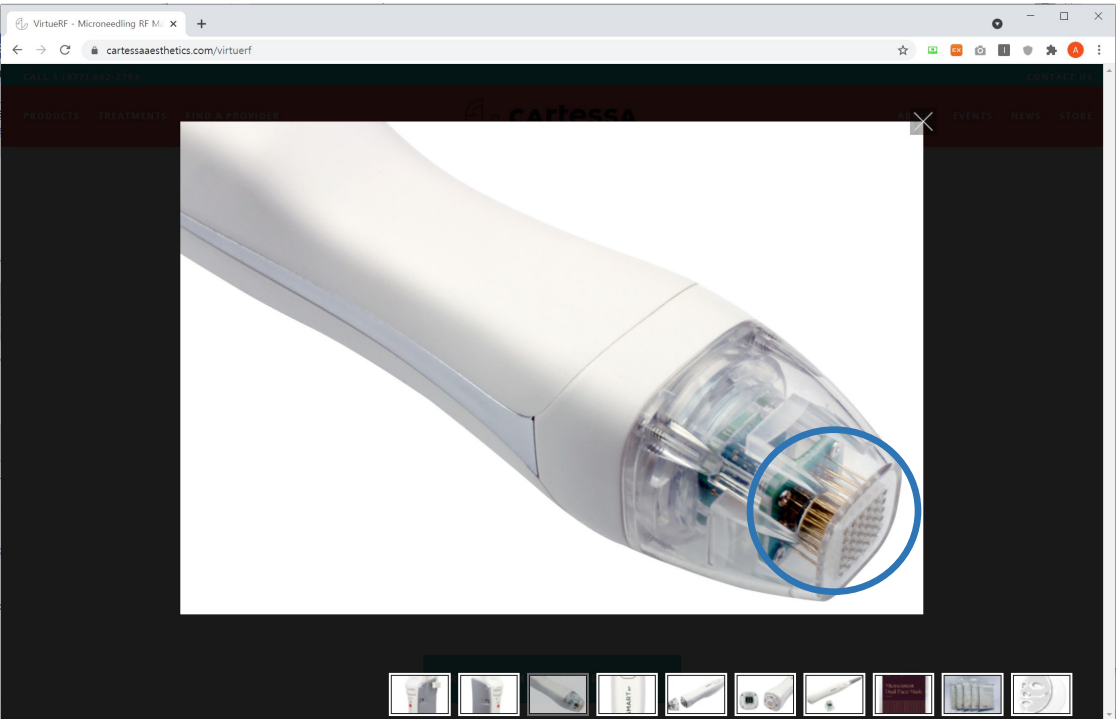
This is a device can coagulate the surrounding tissue and transmitting RF micro current deep inside the tissue by using micro needles or single pin tips It consists of the main body and the Smart BipolarRF Handpiece, foot switch and power cord.

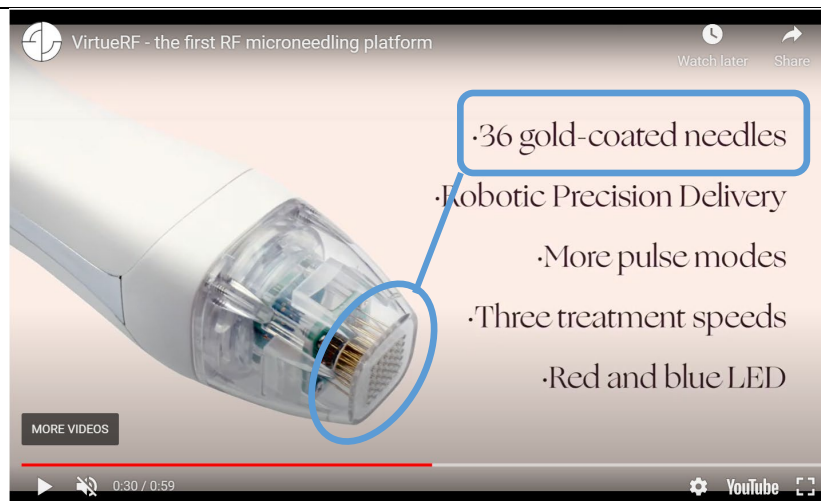
This product is a radio frequency output device of 1MHz, 2MHz that transmits radio frequency power to the human body by TIP connected to the connecting cable.

<http://www.shenb.com/sub/product/product.asp?idx=655>



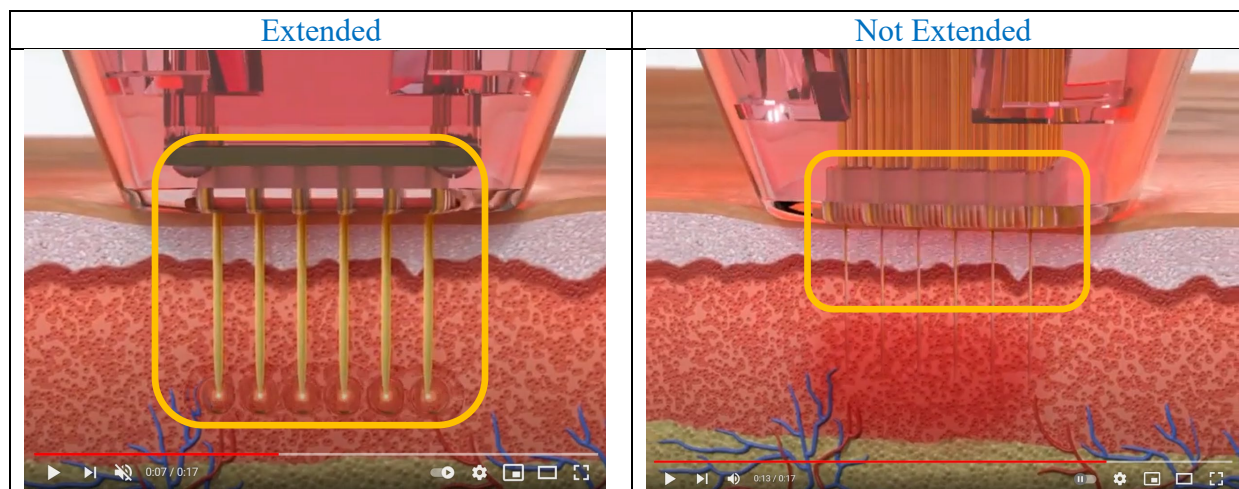
<https://virtuerf.com/learn/> (accessed 10/14/2021)

Claim 12	VirtueRF
<p>12. The apparatus for treating dermatological tissue of claim 11, wherein the device includes an end surface configured to be placed on or near dermatological tissue to be treated, the end surface including a plurality of needles extendable a desired distance from the end surface.</p>	<p>The VirtueRF device comprises the apparatus for treating dermatological tissue of claim 11, wherein the device includes an end surface configured to be placed on or near dermatological tissue to be treated, the end surface including a plurality of needles extendable a desired distance from the end surface.</p> <p>VirtueRF comprises a device including an <b>end surface</b> configured to be placed on or near dermatological tissue to be treated.</p>  <p><a href="https://www.cartessaesthetics.com/virtuerf">https://www.cartessaesthetics.com/virtuerf</a> (accessed 10/14/2021)</p>

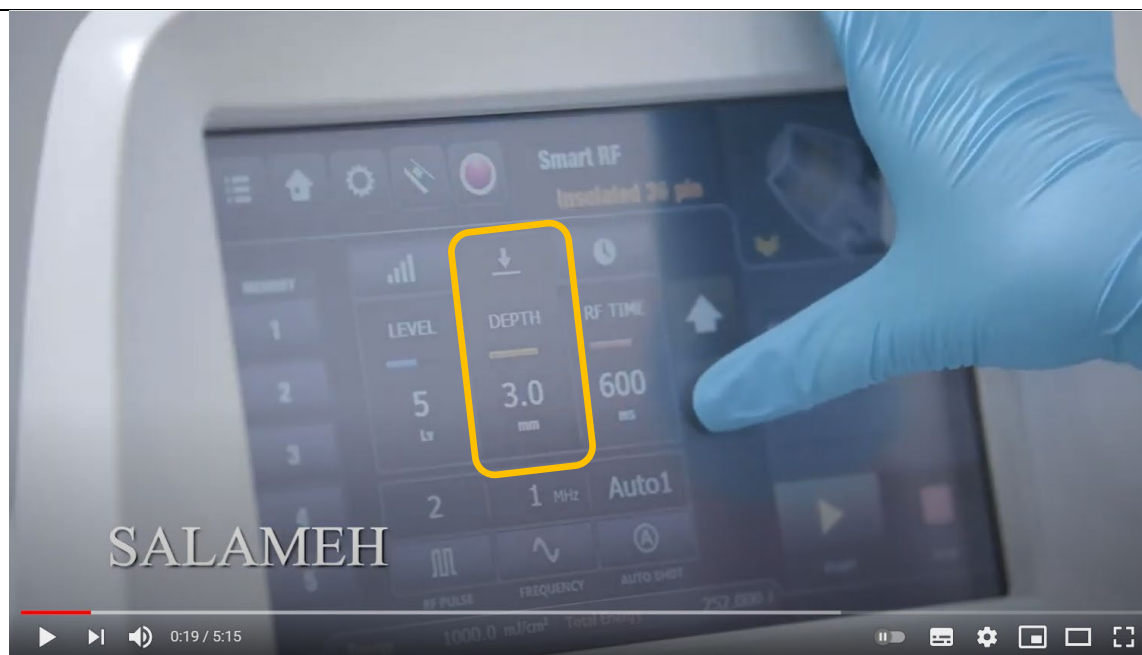


<https://youtu.be/0bfEkkDn-JQ> at 0:30 (accessed 10/14/2021)

The end surface of the Virtue RF device comprises a plurality of needles extendable a desired distance from the end surface.

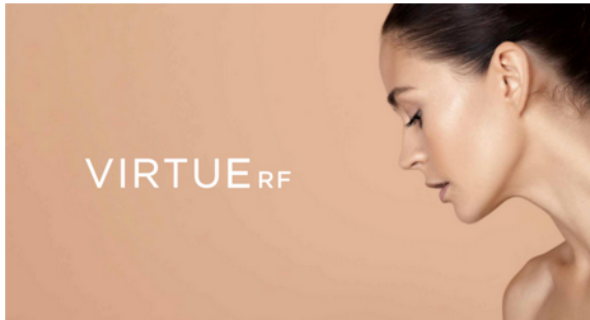



<https://youtu.be/IBBVfXkRn3M> at 0:07 and 0:13 (accessed 10/14/2021)

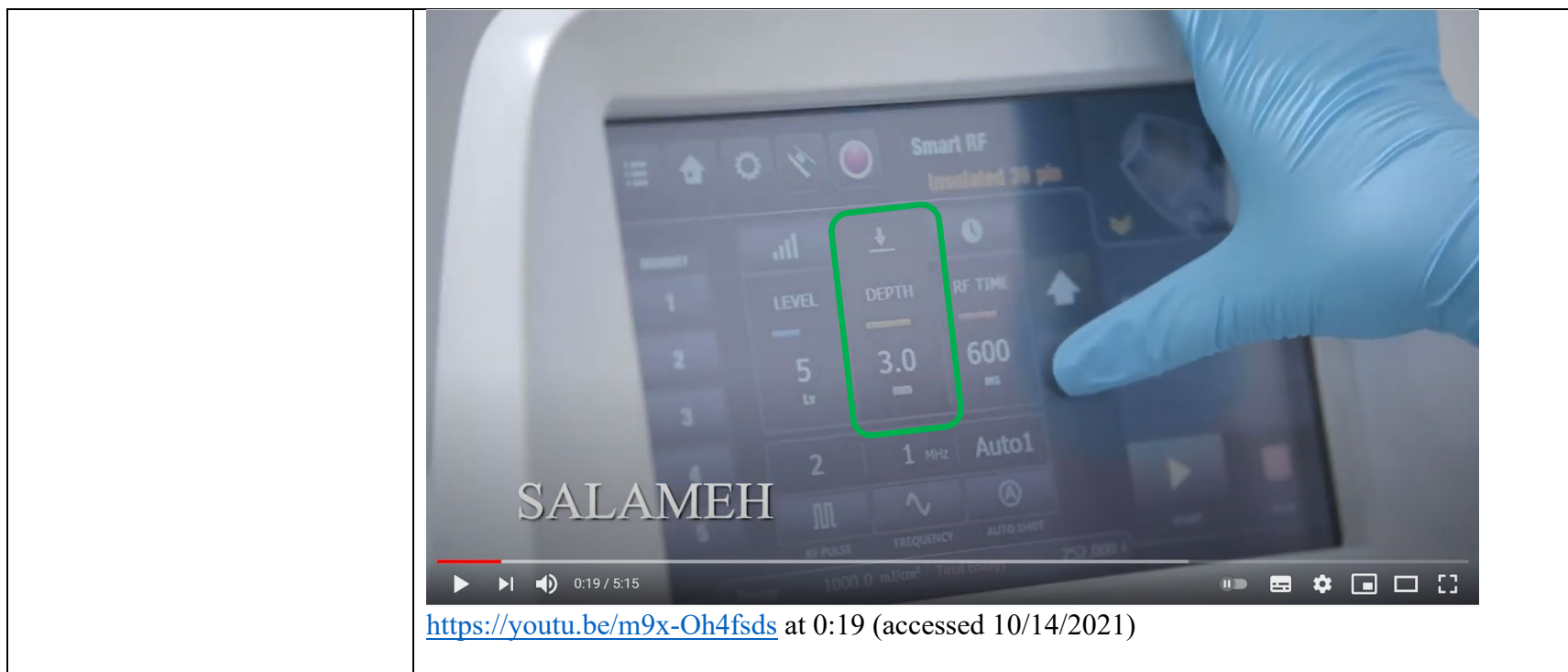


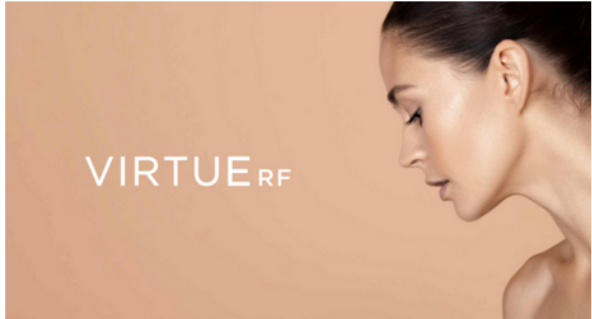

<https://youtu.be/m9x-Oh4fsds> at 0:19 (accessed 10/14/2021)

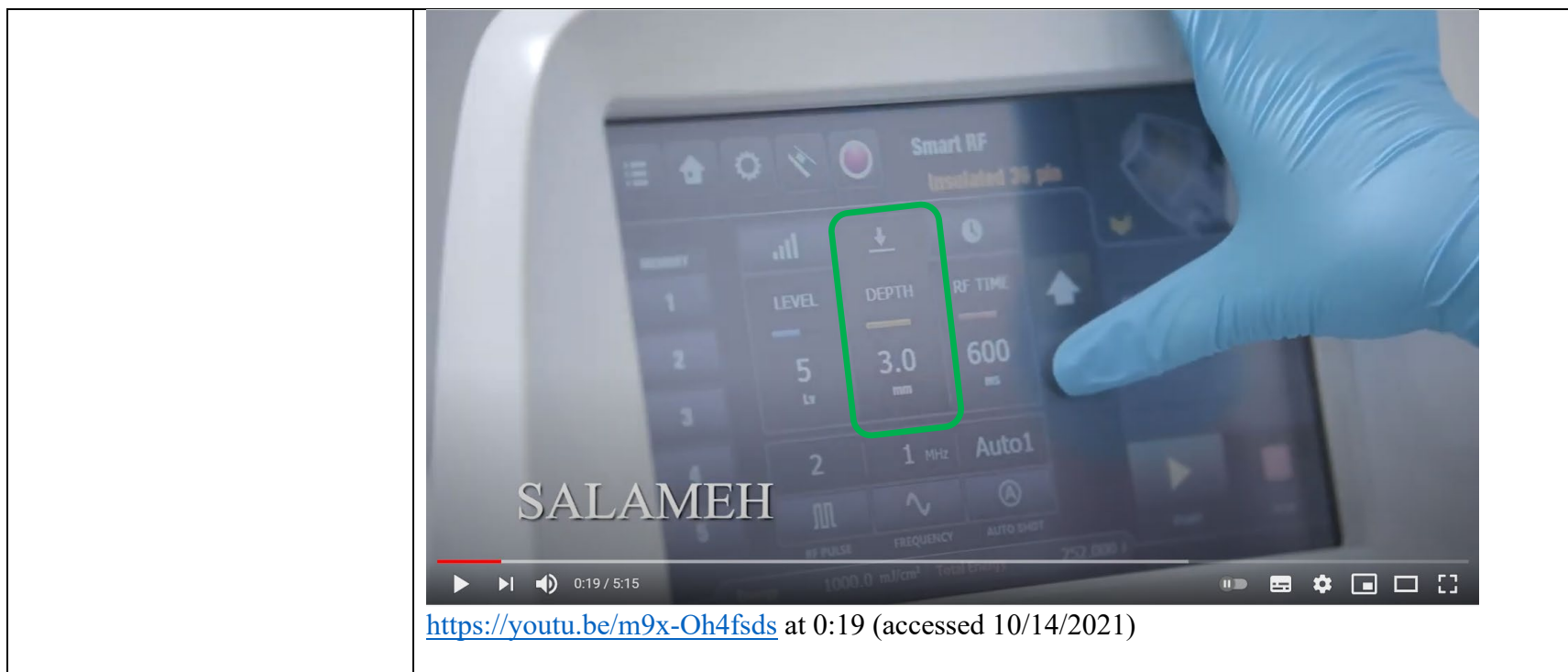


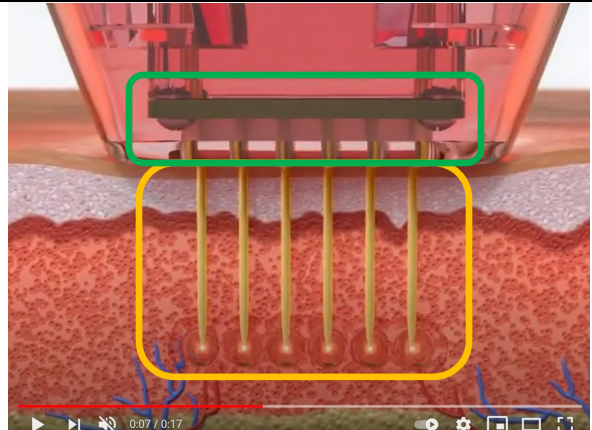
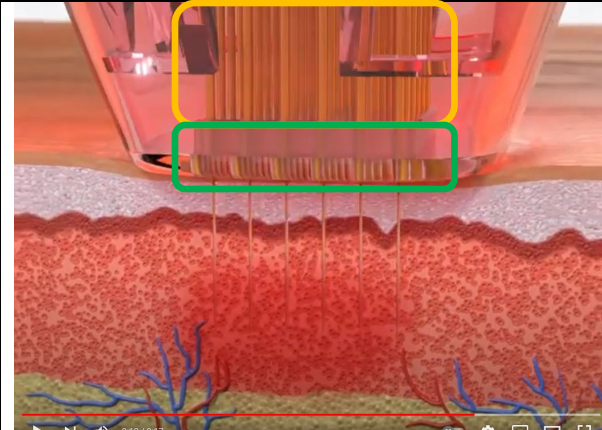
Claim 13	Virtue
<p>13. The apparatus for treating dermatological tissue of claim 12, further including a mechanism for causing the plurality of the extendable needles to extend a desired distance from the end surface.</p>	<p>The Virtue RF device further comprises a mechanism for causing the plurality of the extendable needles to extend a desired distance from the end surface.</p> <p style="text-align: center;"><b>VIRTUE RF MICRONEEDLING</b></p> <div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <p>Monarch Aesthetic Medicine continues to be a leader in aesthetics as we are excited to introduce VIRTUE RF, the next generation in RF microneedling with the ability to target unwanted scars and wrinkles as it simultaneously lifts and tightens the skin.</p> <p>This minimally invasive treatment has little down time, and with our team of aesthetic experts, coupled with the most advanced RF Microneedling platform available, you'll enjoy a smooth and speedy recovery.</p> <p>VIRTUERF is the newest generation of radio frequency microneedling combined with LED light therapy, with FDA-clearance for your safety. The VIRTUERF goes beyond treating wrinkles, fine lines, for the face, neck, hands, and body.</p> <p>VIRTUERF's precise robotic motor provides a treatment that is unmatched to comparative devices you'll find in the market. Results are immediate and improve as time passes, providing the best of both worlds.</p> <p><a href="https://monarch-aesthetic.com/virtuerf">https://monarch-aesthetic.com/virtuerf</a> (accessed 10/26/2021)</p> </div> <div style="width: 35%; text-align: center;">  <p>VIRTUE<sub>RF</sub></p>  </div> </div>





Claim 14	Virtue RF
<p>14. The apparatus for treating dermatological tissue of claim 12, further including a motor coupled to the plurality of extendable needles that may be directed to cause the plurality of the extendable needles to extend a desired distance from the end surface.</p>	<p>The Virtue RF device further comprises a motor coupled to the plurality of extendable needles that may be directed to cause the plurality of the extendable needles to extend a desired distance from the end surface.</p> <p style="text-align: center;"><b>VIRTUE RF MICRONEEDLING</b></p> <p>Monarch Aesthetic Medicine continues to be a leader in aesthetics as we are excited to introduce VIRTUE RF, the next generation in RF microneedling with the ability to target unwanted scars and wrinkles as it simultaneously lifts and tightens the skin.</p> <p>This minimally invasive treatment has little down time, and with our team of aesthetic experts, coupled with the most advanced RF Microneedling platform available, you'll enjoy a smooth and speedy recovery.</p> <p>VIRTUERF is the newest generation of radio frequency microneedling combined with LED light therapy, with FDA-clearance for your safety. The VIRTUERF goes beyond treating wrinkles, fine lines, for the face, neck, hands, and body.</p> <p>VIRTUERF's precise robotic motor provides a treatment that is unmatched to comparative devices you'll find in the market. Results are immediate and improve as time passes, providing the best of both worlds.</p> <p><a href="https://monarch-aesthetic.com/virtuerf">https://monarch-aesthetic.com/virtuerf</a> (accessed 10/26/2021)</p>  



Claim 15	Virtue RF
<p>15. The apparatus for treating dermatological tissue of claim 11, wherein the device includes an inner surface including a plurality of needles extending a desired distance from the inner surface.</p>	<p>The Virtue RF device comprises an inner surface including a plurality of needles extending a desired distance from the inner surface.</p> <div> <div> <p>Extended</p>  </div> <div> <p>Not Extended</p>  </div> </div> <p><a href="https://youtu.be/IBBVfxkRn3M">https://youtu.be/IBBVfxkRn3M</a> at 0:07 and 0:13 (accessed 10/14/2021)</p>

	Extended	Not Extended
	 <a href="https://www.instagram.com/p/CUbI-xIpYGk/">https://www.instagram.com/p/CUbI-xIpYGk/</a>	

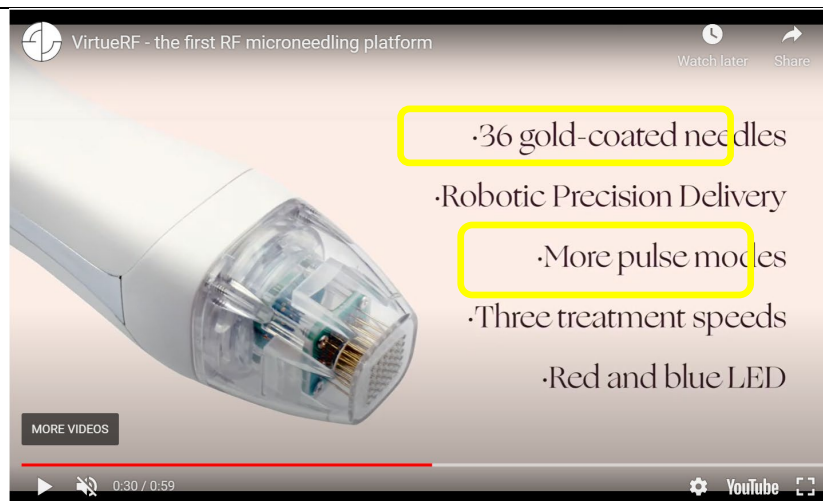
Claim 18	VirtueRF
<p>18. The apparatus for treating dermatological tissue of claim 11, wherein the signal generator produces periodic pulsed radio frequency signals across the plurality of needles for a predetermined time interval, each pulse having a width.</p>	<p>The Virtue RF device comprises a signal generator that produces periodic pulsed radio frequency signals across the plurality of needles for a predetermined time interval, each pulse having a width.</p> <p>The Virtue RF device comprises a signal generator.</p> <h3>Main Body Description</h3> <div>1 LCD monitor</div> <div>2 Emergency switch</div> <div>3 LED indicator</div> <div>4 Front Handle</div> <div>5 Handpiece cradle</div> <div>6 Castor</div> <div>7 Handpiece Holder</div> <div>8 Handpiece</div> <div> </div> <p><a href="http://www.shenb.com/sub/product/product.asp?idx=655">http://www.shenb.com/sub/product/product.asp?idx=655</a> (accessed 10/14/2021)</p>

The Virtue RF produces periodic pulsed radio frequency signals across the plurality of needles for a predetermined time interval.



<https://youtu.be/m9x-Oh4fsds> at 0:19 (accessed 10/14/2021)





<https://youtu.be/0bfEkkDn-JQ> at 0:30 (accessed 10/14/2021)

Technical Specifications / Indications  
for Use Comparison:

Comparison for 1MHz Functionality			
	Proposed Device ShenB VirtueRF	Predicate device for 1MHz Vivace Electrosurgical System	Comparison
Source of energy/Modality	Bipolar Fractional RF	Bipolar Fractional RF	Same
Radiofrequency	1MHz	1MHz	Same
Output energy type	High Frequency	High Frequency	Same
Electrode type	Bipolar microneedle	Bipolar microneedle	Same
Max Power	35.9W	61 w	Same
RF Duration	100ms-800ms, with 100ms increments	100ms-800ms, with 100ms increments	Same



Comparison for 2MHz Functionality			
	Proposed Device ShenB VirtueRF	Reference device for 2MHz Secret RF	Comparison
Source of Energy/Modality	Bipolar Fractional RF	Bipolar Fractional RF	Same
Radiofrequency	2MHz	2MHz	Same
Output energy type	High Frequency	High Frequency	Same
Electrode type	Bipolar microneedle	Bipolar microneedle	Same
Max Power	25 W	25W	Same
RF Duration	100ms-800ms, with 100ms increments	50ms – 950ms	Similar

On information and belief, each pulsed radio frequency produced by the Virtue RF device has a width.

**Pulse Width (PW)** is the elapsed time between the rising and falling edges of a single pulse. To make this measurement repeatable and accurate, we use the 50% power level as the reference points.

**Pulse Repetition Interval (PRI)** is the time between sequential pulses. We typically measure PRI as the time from the beginning of one pulse and the beginning of the next. We use PRI to report the number of seconds per pulse.

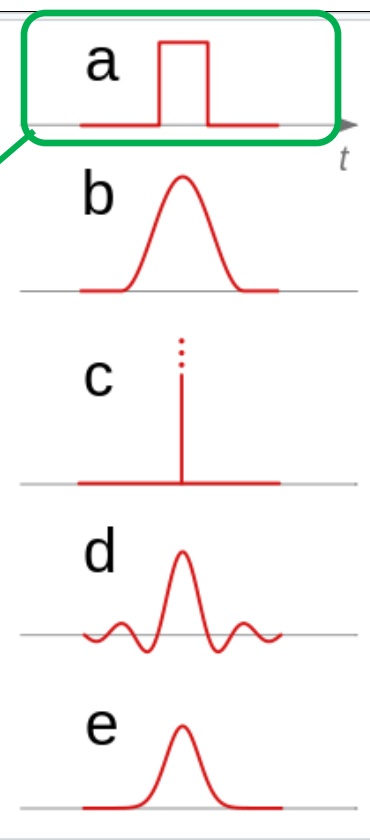
**Pulse Repetition Frequency (PRF)** is the reciprocal of PRI. The basic unit of measure for PRF is hertz (Hz). Use PRF to report the number of pulses per second. Look at a 1 GHz clock signal as an example. The clock signal is a continuing stream of pulses at a PRF of 1 GHz.

<https://www.oscium.com/sites/default/files/wipry-combo/Final%2C%2520Tutorial%2520on%2520Pulse%2520Width%2520and%2520Duty%2520Cycle.pdf>

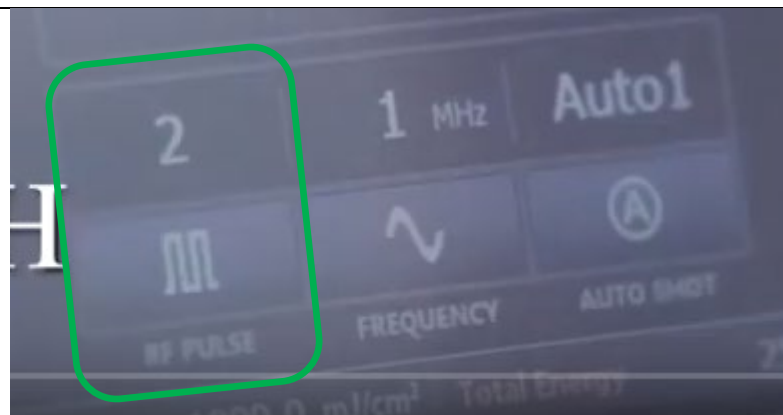
**Rectangular pulse** [edit]

These can be found in [pulse waves](#), [square waves](#), [boxcar functions](#), and [rectangular functions](#). In digital signals the up and down transitions between high and low levels are called the rising [edge](#) and the falling edge. In digital systems the detection of these sides or action taken in response is termed edge-triggered, rising or falling depending on which side of rectangular pulse. A [digital timing diagram](#) is an example of a well-ordered collection of rectangular pulses.

[https://en.wikipedia.org/wiki/Pulse\\_\(signal\\_processing\)](https://en.wikipedia.org/wiki/Pulse_(signal_processing))



Examples of pulse shapes: (a) [rectangular pulse](#), (b) cosine squared (raised cosine) pulse, (c) [Dirac pulse](#), (d) [sinc pulse](#), (e) [Gaussian pulse](#)



<https://youtu.be/m9x-Oh4fsds> at 0:18 (accessed 10/26/2021)

**Caveat:** The notes and/or cited excerpts utilized herein are set forth for illustrative purposes only and are not meant to be limiting in any manner. Further, to the extent any error(s) and/or omission(s) exist herein, all rights are reserved to correct the same.